Name _____ Period _____

Chemistry: What to Study Guide

Know how to:

- Find the number of protons, electrons, and neutrons in an element using the periodic table of elements.
- Determine the number of valence electrons in an element.
- Draw Bohr models and Lewis Structures (dots) for different elements.
- Determine the number of protons, electrons, and neutrons in an ion or an isotope.
- Determine whether two elements will create ionic, covalent, or metallic bonds.
- Draw Lewis Structures showing how electrons are transferred to show an ionic bond.
- Draw Lewis Structures showing how electrons are shared to show a covalent bond.
- Know how to read and interpret a phase change diagram
- Know how to identify examples of solutions, suspensions, compounds
- Know how to identify more and less dense objects

Also be sure to know all the vocabulary words and answers below

Vocabulary words: Define each.

- Atom

- Atomic Mass

- Atomic Number

- Boiling

- Compound

Name _____ Period _____

- Condensation
- Covalent Bond
- Decomposition
- Density
- Dissolve
- Double Bond
- Double Replacement (Displacement)
- Electron
- Electron Cloud
- Element
- Fluid

Name _____ Period _____

- Freezing
- Gas
- Heterogeneous
- Homogeneous
- Ion
- Ionic Bond
- Isotope
- Lewis Structure
- Liquid
- Melting
- Metallic Bond

Name _____ Period _____

- Mixture
- Neutron
- Noble Gas
- Nucleus
- Periodic Table
- Proton
- Single Bond
- Single Replacement (Displacement)
- Solid
- Solute
- Solution

Name _____ Period _____

- Solvent

- Subatomic

- Suspension

- Synthesis

- Valence Electron

- Vaporization

Answer the following questions:

- How is an ion different from the basic element?

- How is an isotope different from the basic element?

- What happens if we change the number of protons in the element?

- Why do we not include the number of electrons in the atomic mass?

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Use your periodic table to determine:

1. How many protons does a Carbon atom have? _____
2. How many neutrons does a Calcium atom have? _____
3. How many electrons does a Helium atom have? _____
4. How many valence electrons does Argon have? _____
5. How many electrons does oxygen want to gain to form an ion? _____
6. How many electrons in O-18? _____
7. How many neutrons in O-18? _____
8. How many protons in O-18? _____
9. If the charge of the ion is "plus 3" did we gain or lose electrons? _____
10. Metals and nonmetals create _____ bonds.
11. Metals and metals create _____ bonds.
12. Two nonmetals will create _____ bonds.
13. Will nitrogen form a cation or an anion? _____
14. Draw a Bohr Model for Oxygen.

15. Draw a Lewis Structure for Magnesium.

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16. Draw the Lewis structures to show how Carbon and Hydrogen will share electrons to form a covalent bond.

17. Draw the Lewis structure to show how Magnesium and Chlorine will transfer electrons to form an ionic bond.

18. Name two examples of solutions.

19. Name two examples of suspensions.

20. Name two other heterogeneous mixtures.

21. Explain the difference between a heterogeneous and a homogeneous mixture.

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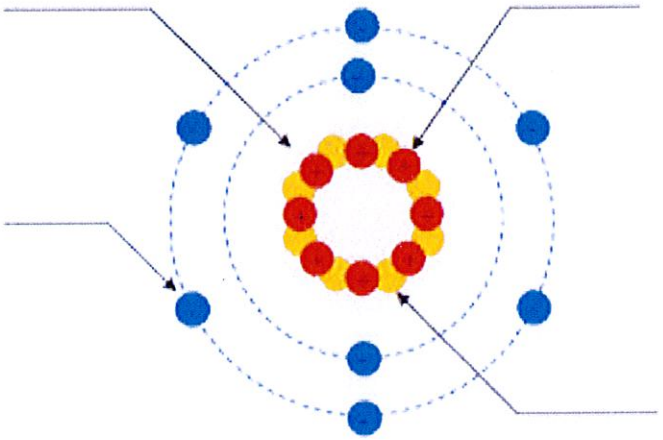
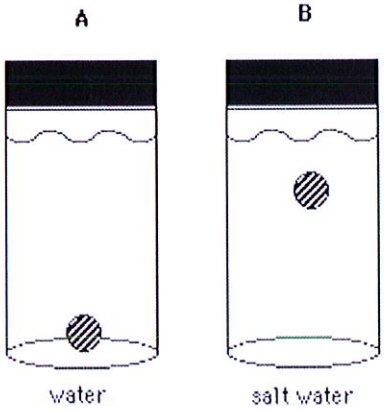
22. Label the protons, electrons, neutrons, and nucleus in the atom below:



23. Which has a higher density, salt water or water? How do you know?



24. Draw examples of the particles in a solid, liquid, and gas. Explain what the particles are doing in each picture you draw. Label each picture.

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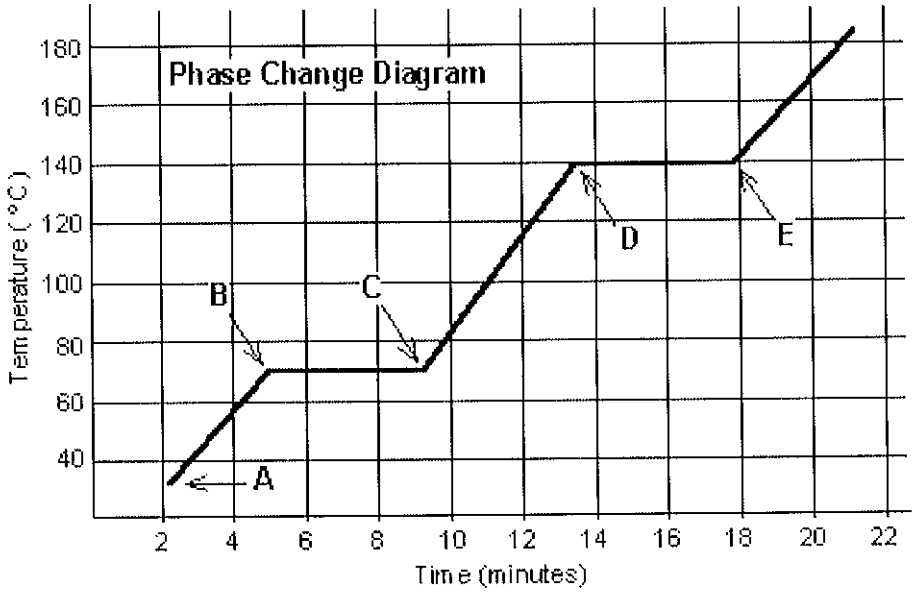
25. Explain how you can tell if a chemical reaction has occurred? (MIND MAP)

Use the phase change diagram below to answer the remaining questions:



1. What is the boiling point of this substance? _____

2. What is the state of matter at 60 degrees Celsius? _____

3. Between what two letters do we find only liquids? _____

4. Between what two letters do we find freezing? _____

5. Why do we find solids and liquids at the same time on BC?

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The answer to each question below is either ionic, covalent, or metallic.

1. In a(n) _____ bond, electrons are shared between two atoms.

2. In a(n) _____ bond, electrons are transferred from one atom to another.

3. In a(n) _____ bond, there is a sea of electrons shared by all the atoms.

4. A(n) _____ compound has a low melting point.

5. A(n) _____ compound is able to conduct electricity.

6. A(n) _____ compound can dissolve in water.

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More Ions ~~Homework~~

Element	Valence Electrons	Gains/Loses How many?	Charge	Cation/Anion
Lithium				
Potassium				
Chlorine				
Cobalt (II)	2	lose 2		
Copper (I)	1	lose 1		
Polonium				
Sulfur				
Phosphorus				
Francium				
Calcium				
Nitrogen				
Bromine				
Silver (III)	3	lose 3		
Selenium				

And some isotopes:

Carbon - 14

Atomic mass: _____

Atomic number: _____

Protons: _____

Electrons: _____

Neutrons: _____

Iodine - 60

Atomic mass: _____

Atomic number: _____

Protons: _____

Electrons: _____

Neutrons: _____